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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,470	08/06/2001	Edward J. Grenchus JR.	END920010061US1	1539
7590 Shelley M Beckstrand Patent Attorney 61 Glenmont Road Woodlawn, VA 24381-1341		10/09/2007	EXAMINER ROBERTSON, DAVID	
			ART UNIT 3623	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/923,470	GRENCHUS ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Dave Robertson	3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 23 July 2007.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3-15 and 19-32 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
  - 5) Claim(s) \_\_\_\_\_ is/are allowed.
  - 6) Claim(s) 1, 3-15 and 19-32 is/are rejected.
  - 7) Claim(s) \_\_\_\_\_ is/are objected to.
  - 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

1. This is a Final office action in response to the Reply of 7/23/2007 over pending claims 1, 3-15, and 19-32.

### ***Response to Amendment***

2. Applicant substantially amends independent claims 1, 14, 19, and 32 introducing limitations not previously presented for examination on the merits in any claim to date.
3. Applicant amends claims 4, 5, 7, and 8 to correct objections to dependency on a previously cancelled claim. Accordingly, the objection is withdrawn.

### ***Response to Arguments***

4. Applicant's Remarks filed 7/23/2007 have been fully considered but they are not persuasive:

- a. Applicant argues Grenchus ("Demanufacturing of Information Technology Equipment", IEEE 1997) does not teach using estimates of the amount, type, and timing of a customer shipment in workload planning (Remarks, page 13).

However, Grenchus was not alone used to teach using estimates of the amount, type, and timing of a customer shipment in workload planning. With respect to the claims, Fields was used to teach determining staffing requirements and productivity requirements for a demanufacturing enterprise. (Office Action page 6).

b. Applicant argues distinction of the invention over Grenchus in that the invention describes a method for workload projection for a demanufacturing enterprise which has *many customers*. (Remarks, page 13).

Referring to the limitation of claim 1 regarding *a plurality of customers*, Examiner respectfully disagrees: Grenchus teaches a demanufacturing enterprise serving more than one customer (Grenchus, III. 2<sup>nd</sup> paragraph at "customers are not always able to give definitive information about shipments), and Fields in teaching workload planning for manufacturing for multiple customers' orders.

c. Applicant argues Grenchus does not teach a *unique* complexity factor for each customer (Remarks, page 14). However, a *unique* complexity factor is not claimed. Broadly interpreted, *determining a complexity factor for each customer* includes determining *for each customer* which of two product categories applies, small machines or medium to large machines; i.e. the complexity factor for the customer is determined by the size of the computer equipment.

d. Applicant argues Grenchus implies that planning problems still existed at the time of writing, problems solved by the present invention (Remarks, pages 14). However, Grenchus was used to teach aspects of the claimed invention, not whether all planning problems in demanufacturing were solved at the time of invention.

e. Applicant argues Fields (US Pat. 5,111,391) teaches a scheduling module requiring in advance the staff and resources needed for the series of tasks

(Remarks, page 14). However, Fields was not alone relied upon to teach the determining of the staff and resources needed for the demanufacturing operation. Rather, Suzuki was used to teach known methods of converting demanufacturing complexity and volume to processing time and resources (means for processing). Once such time and resources are known, it would obvious to develop a production schedule using a method such as in Fields.

f. Applicant argues that because Suzuki (US Pat. 6,226,617) works by affixing data to each machine, Suzuki cannot teach determining a complexity factor for each customer whose input may contain a variety of products (Remarks, page 15). However, each customer whose input may contain a variety of products is not claimed, and further, Suzuki was used only to teach complexity factors dependent on the separation procedures including those involving treatments of materials involved with regulatory standards or hazard.

g. Applicant argues that Suzuki would not provide the ability to prescribe specific requirements or work content (Remarks, page 15). However, Suzuki is not relied upon to teach prescribing specific requirements or work content (or as claimed, *identifying critical factors*). Grenchus in view of Suzuki however suggests that such *non-financial factors* were critical to reducing risk of liability and meeting regulations for the processing of harmful or hazardous materials.

With respect to call claims:

h. Applicant argues the prior art previously applied, alone or in combination, does not teach or suggest a *workload planning process based upon the*

*summation of results for a plurality of customers, with volume, critical factors, and complexity defined for each customer, and projected into the future at a plurality of checkpoints for workload and staffing planning.* To the extent the above description of the invention is claimed, the rejections to follow address this assertion.

5. The rejections of the prior office action are updated below in response to Applicant's amendments to the claims presented.

#### ***Claim Objections***

6. Claims 14 and 32 are objected to because of the following informalities as noted by the following grammatical/typographical corrections needed:

In claim 14, page 7 line 32: insert "s" at "a plurality of future checkpoints"

In claim 32, page 11 line 23: insert "ing" at "establishing and adjusting"

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112, 1<sup>st</sup> Paragraph***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1, 3-15, and 19-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably

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convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 4, 19 and 32 recite *determining...a complexity factor..., including identifying any critical factors*; however, the original disclosure does not disclose a step of *determining...including identifying critical factors*. The word "critical" appears once on page 2 in the original specification, and is imported by amendment to the specification filed 7/23/2007 from the text of co-filed U.S. patent application Serial No. 09/524,366 to the same inventive entity and incorporated by reference. Still, the specification as amended only refers to *critical operations* and *critical parts* but not *critical factors*. Furthermore, the definition of *critical factors* recited in the amend claim at said critical factors including specific asset protection requirements, destruction, and impairment techniques, does not find explicit support as this definition of *critical factors* by these terms does not appear in either the instant disclosure or the co-filed application.

Claims 1, 4, 19 and 32 recite *utilizing periodic updates...of said critical factors..., prior customer product shipment experience, and new demanufacturing product prototyping ... to adjust said complexity factors*; however, this limitation does not find support in the disclosure at least because of the above regarding *critical factors*, but also because the disclosure also does not support *utilizing periodic updates...to adjust complexity factors*. With regard to *utilizing periodic updates...of prior customer product shipment experience*, the disclosure supports "determining with each customer a plan for future shipments and arranging timing of shipments" (Specification page 11), but does not support the limitation as claimed. With regard to *adjusting complexity factors*,

the disclosure refers to "adjusting said workload requirements for absenteeism, fatigue, breaks, and vacation pattern factors" (see Specification page 18; Claim 10) but not *adjusting the complexity factor*. The *periodic updating* that is disclosed is "periodically updating said workload planning model based upon actual and anticipated changes in quantity projections and complexity factors (Specification page 18; Claim 12), however, the complexity factor is not disclosed as being adjusted based on the *volume, factors, and shipment experience*.

Claims 1, 4, 19 and 32 recite *determining staffing requirements...for a plurality of future periods*; however, this limitation does not find support in the disclosure. The disclosure supports determining work volumes and staffing for a future period (Specification page 7) but does not disclose doing so for a *for a plurality of future periods*.

Claim 14 recites *generating a summation of said staff requirements...at a plurality of future checkpoints...to preclude any future staffing or capacity issues*; however, this limitation does not find support in the disclosure. The disclosure does not mention *checkpoints* (or milestones or any other recognized synonym) nor does it mention *a plurality of future checkpoints or precluding future issues*.

For reasons given above for the new matter incorporated into all independent claims, the remaining dependent claims are similarly rejected.

Amendment to remove the new matter is required.

***Claim Rejections - 35 USC § 112, 2<sup>nd</sup> Paragraph***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1, 3-15, and 19-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 14, 19 and 32 recite *said critical factors including specific asset protection requirements, destruction, and impairment techniques, regardless of any financial benefit or cost*. It is unclear what the phrase *regardless of any financial benefit or cost* modifies to further limit the claim. Lacking also subject matter support (see above) for *critical factors* and the limitation as whole herein defining *said critical factors*..., for the purposes of examination the limitation *determining...* with respect to *critical factors* will be interpreted to recite the *determining...a complexity factor...including identifying non-financial factors.*

Claims 1, 14, 19 and 32 recite *utilizing periodic updates...of any other factors*; however, it is unclear to what *of any other factors* refers. It renders the claim indefinite because the bounds on what factors may be utilized is unknown. Because *any other factors* is undefined, for the purposes of examination the phrase *and of any other factors* will not be considered.

Claims 1, 14, 19 and 32 recite *determining staffing requirements... for a plurality of future periods to facilitate advanced warning and the time to preclude any future staffing or capacity issues*. In addition to lacking support as above for a *plurality of*

*future periods, and being unclear as to what is meant by to facilitate advance warning and the time to preclude... For the purposes of examination, the limitation will be interpreted as determining staffing requirements for a future time period.*

Claims 14 recites *generating a summation of said staff requirements...at a plurality of future checkpoints...for a plurality of future periods to facilitate advanced warning and the time to preclude any future staffing or capacity issues*. In addition to lacking support as above for *checkpoints* and *future periods*, and being unclear as to what is meant by *to facilitate advance warning and the time to preclude...* For the purposes of examination, the limitation will be interpreted as *generating a summation of staff requirements for a future time period.*

Amendment or clarification is requested.

#### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1, 3-5, 7, 8, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grenchus et al ("Demanufacturing of Information Technology Equipment" in Proceedings of the 1997 IEEE International Symposium on Electronics and the Environment, 1997, pgs 157-160) in view of Suzuki et al (US Pat. 6,226,617) and further in view of Fields et al (US Pat. 5,111,391).

Grenchus et al, disclose the developments and improvements to IBM's electronics demanufacturing processes reporting success in reutilization of materials in pounds of equipment and parts and in dollars saved. Suzuki, for example, discloses product disposal system including methods for assessing complexity and cost based on weight and volume, and selecting and monitoring processes for "treatments" of discarded manufactured articles. Also during this period, 1997 to 2001, there appeared renewed research interest in product disposal and recovery technologies across the life-cycle of the products reaching from product design to product disposal. See Sandborn and Murphy and Lee and Ishii and numerous other research papers in the previously submitted and cited art as evidence of demanufacturing increasingly recognized as a manufacturing process itself with manufacturing planning processes applied (e.g. Fields) to manufacturing design to production planning throughout the reuse, recycling and disposal of products and their component parts.

Specifically, with respect to the claims presented:

Claim 1

Grenchus teaches *determining for a prospective customer a projected volume of material for processing* (see page 158, Part IV. Receipt, Advanced Ship Notice); *determining for a customer a complexity factor for the demanufacturing processing* (see page 157, paragraph top of right column, "It is staffed on 2 shifts and has an annual capacity of approximately 40 million pounds based on product mix and machine complexity."); however, Grenchus does not teach the *determining...including identifying any critical factors* (see 112 2<sup>nd</sup> interpretation above: critical factors are *non-financial*

factors); nor determining a complexity factor for each customer...the complexity factor representing processing time divided by projected volume.

With respect to identifying any critical [non-financial] factors, it was old and well known in the art of demanufacturing that in reclaiming certain products, materials involving harmful and hazardous materials, breach of intellectual property, and other non-financial factors required great care in the handling of recycled products. Mahoney, for example, teaches ("The Risks and Rewards of Electronics Recycling", 1998), describes an analysis plan including financial recovery factors as well as environmental risk materials, and *catastrophic risks* (see Mahoney, page 2). It would have been obvious to one of ordinary skill at the time invention to avoid such risks in the demanufacturing of recycled products by identifying any critical [non-financial] factors, as awareness and planning for these factors this would have been necessary to protecting the demanufacturer from liability against environmental or business harms in the processing of customers' recycled products.

With respect to determining a complexity factor for each customer, Grenchus clearly suggests that multiple customers may be serviced by a remanufacturing facility (Grenchus, III. 2<sup>nd</sup> paragraph at "customers are not always able to give definitive information about shipments). Grenchus teaches that determining a complexity factor includes determining for each customer which of two product categories applies, small machines or medium to large machines; i.e. the complexity factor for the customer is

determined by the size of the computer equipment. Thus, given multiple customers differing in products to be recycled by at least the size of the machine being sent for remanufacturing (e.g. a customer from a "pc" division vis-à-vis a mainframe division), a complexity factor is determined (by one of two categories of equipment size) for each customer. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to *determine of a complexity factor for each customer.*

With respect to processing time divided by projected volume, Suzuki teaches assessing disassembly and segregation time based on complexity and volume (see column 3 from line 10, "...time taken for treatment of the article...on the basis of dimension or alternatively weight of the article...", and see column 11 from line 65 to column 12, service time of each facility multiplied with the treatment cost per unit time). Thus, Suzuki teaches directly in the art of manufacturing product disassembly and disposal that processing time (T), times unit volume (V), and complexity of processing of a unit of volume (C) are directly related (i.e.  $C \times V = T$ ), and that using such relation leads to better estimates of the time required to process or, in this discussion, *de-process* a manufactured product. Suzuki also teaches extensively that the complexity of the separation procedures determines time, cost and means of processing; that is, treatments involving statutory regulations or standards and harmful or hazardous materials (see column 15 from line 60 through column 16). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention that "machine complexity" as taught by Grenchus would be a factor in determining the time (and cost)

to demanufacture a product, and that a volume of product to be demanufactured multiplied by its complexity per unit would result in a *more accurate estimation* of the total time to disassemble, reuse, recycle, or dispose of the product.

Grenchus, further teaches, with respect to claim 1:

*identifying work content and resulting saleable, commodity, and trash items* (see page 157, Figure 1, box SORT, showing sorting bins for External Reuse, Internal Reuse, Recycle, and Landfill, and specific mention of *commodities* as an output of machine teardown (page 160, Part IX. B.);

*dismantling prototype machines* (see page 160, Part IX. B in "Complete machine type analysis for tear down, commodity recovery, and part reuse is routinely examined by engineering. A designated team of engineers and technicians tear apart and classify contents to maximize reuse and recovery of incoming machines and commodities.").

Taken together, with the teaching of capacity based on machine complexity (page 157), that engineering teams perform an analysis of machines by tear down, and further teaching that machine analysis is performed to meet the challenge of Product, Material, and Other issues, including *level of tear-down for optimal recovery* (see page 157, Part IX. Common issues:...Other...), fairly teaches, by definition, that a *prototyping* step is included in the published process; and while Grenchus suggests determining staffing requirements based on complexity (page 157, "staffed on 2 shifts and has annual capacity based on ...machine complexity") and assigning specifically skilled workers to the disassembly line (see page 159 Part VII. B.); however, Grenchus does not expressly

teach determining staffing requirements and productivity targets for a demanufacturing enterprise...for a future time period.

It was old and well known in the art of that demanufacturing was increasingly recognized as a manufacturing process itself with manufacturing planning processes (see, for example, Sandborn and Murphy and Lee and Ishii and numerous other research papers in the previously submitted and cited art). Within the art of manufacturing production planning, Fields teaches identifying and assigning specifically skilled workers to a schedule based on tasks to be performed, skill level required, historical data about the facility, tasks, and skill, to optimize a schedule taking into account personnel matters such as days off. Fields teaches staff scheduling to meet workload requirements, determining staffing requirements based on personnel resources, skills, and demand for a given skill level, and setting productivity targets for the enterprise for a *future time period*, as planning inherently addresses activity of a future time period. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention that staffing for a demanufacturing process, suggested by Grenchus as related to capacity and machine complexity (page 157) and improved by having expert sorters (page 159), based on volume (numbers of staff needed) and complexity (skills for tasks needed) would have provided an optimal allocation of human resources and minimized time and costs, and improved quality of the demanufacturing process.

Claim 3

For reasons given above in claim 1, Grenchus suggests, and in view of Suzuki, teaches converting volume to weight or weight to volume (on the basis of dimensions or weight (Suzuki, column 3 from line 12).

Claims 4 and 5

Glenchus in view of Suzuki teaches or suggest converting of weight and volume as a measure of demanufacturing staffing requirement (as above in claim 3), and determining a complexity factor by disassembly prototyping (as explained above in claim 1, element dismantling prototype machines).

Claim 7

Glenchus in view of Suzuki teaches or suggests projecting volume by truckload (see page 158, Part IV. Customer completes and *Advanced Ship Notice* as a solution to "typical problems with shipments...the inability to identify who sent the truckload of material."). Taken as a whole, Glenchus teaches that customer shipments of articles to be demanufactured arrived by truckload, and Suzuki teaches that time to process is estimated by volume (or weight). It is old and well known in the art that a truckload is a delivery means and a unit measure of delivered materials, measured by both volume and weight, depending on the convenience of the measure compared to the information available (from a truck scale or from a bill of lading). Therefore, it would have been obvious to one of ordinary skill in the art of the invention to project volume of a customer shipment by truckload as this would have been known to be a unit of measure directly

related to well known means of shipping materials, thus accurately projecting the volume of materials delivered to be processed in the demanufacturing operation.

Claim 8

Grenchus teaches disassembly prototyping including the step of determining salvageable and disposable content (see elements of claims 1 dismantling prototype machines and identifying work content and resulting saleable, commodity, and trash items).

Claims 14 and 15

As above for elements of claims 10-13 corresponding to the elements of claims 14 and 15, the claims are similarly rejected for reasons given above; however Grenchus does not teach creating a daily schedule or generating a summation of staffing requirements for all customers and using a computer spreadsheet to do the planning.

Fields teaches creating a Daily Schedule (Figure 3) of staffing requirements for all customers (a summation) and using a computer spreadsheet to do the planning (see, for example, Fields, Figure 3). It would have been obvious to one of ordinary skill at the time of invention to create a daily schedule of staffing requirements for all customers using a spreadsheet model, as creating a daily schedule of staffing requirements for the entire work of the day is required to ensure that the workload for the day to meet customer needs is met, and using a spreadsheet model is well known automated means to keeping track of the complexity of even a modest production plan for any manufacturing enterprise.

Claims 19-23, 25 and 26 recite a program storage device for performing the method of claims 1, 3-5, 7, and 8 and are similarly rejected for reasons given above.

13. Claims 6 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenchus et al ("Demanufacturing of Information Technology Equipment" in Proceedings of the 1997 IEEE International Symposium on Electronics and the Environment, 1997, pgs 157-160) in view of Fields et al (US Pat. 5,111,391) and further in view of Suzuki et al (US Pat. 6,226,617), all as applied to claim 5 above, and further in view of Lee and Ishii ("Demanufacturing Complexity Metrics in Design for Recyclability" in Proceedings of the 1997 IEEE International Symposium on Electronics and the Environment, 1997, pgs 19-24).

Claim 6

Glenchus teaches or suggests accumulating historical data (see page 157, "feed forward disassembly techniques, advances, problems, or concerns for future product design improvements"), however, Glenchus does not expressly teach factoring this historical data into the complexity factor. Lee and Ishii among others discloses the prototyping of a product disassembly process to determine the complexity and cost associated with the demanufacturing process, and specifically the "tracking of DFR (Design For Reuse) redesigns over the history of a product platform. Taken together, Glenchus suggests, and Lee and Ishii teaches, accumulating historical data for determining complexity factor from previously disassembled material, the combination

leading to better designs, potentially lower complexity factor for a product, and therefore lower overall cost of demanufacturing.

Claim 24 recites a program storage device for performing the method of claim 6 and is similarly rejected for reasons given above.

14. Claims 9-13 and 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenchus et al ("Demanufacturing of Information Technology Equipment" in Proceedings of the 1997 IEEE International Symposium on Electronics and the Environment, 1997, pgs 157-160) in view of Fields et al (US Pat. 5,111,391) and further in view of Suzuki et al (US Pat. 6,226,617), as applied to claim 1 above, and further in view of Yuri et al (US Pat. 6,249,715).

Claim 9

Glenchus teaches or suggests staffing requirements based on volume projections and complexity factors, and suggests the demanufacturing process as a reverse manufacturing process using manufacturing assembly lines (see page 158 "Staging" and "Disassembly"); however, Glenchus does not expressly teach a workload planning model also determining resource balancing.

It is old and well known in the art of manufacturing to plan manufacturing with resources balanced according to volume and complexity, so that each resource is optimally used for increased overall utilization and throughput. Yuri et al, for example, teaches optimizing work distribution according to time variation factors based on the work difficulty (i.e. the complexity) and the skill level of the workforce. It would have

been obvious to one of ordinary skill in the art at the time of invention to employ such a planning method to balance the workload of assembly lines operating under the teachings of Glenchus for demanufacturing, as demanufacturing is a reverse manufacturing process involving assembly lines, and balancing those assembly lines according to complexity and skill would have resulted in increased utilization, throughput, and ultimately reduced overall costs per volume processed.

Claim 10

Glenchus in view of Fields teaches or suggests staffing according to the demanufacturing process needs, including employee availability (see Fields, Abstract). By definition of the terms in the art, employee availability (to work on a task) is directly dependent on absenteeism, fatigue, breaks, and vacation patterns (see at least Fields column 5, "Optimize Schedule by Shifts and Breaks").

Claims 11 and 12

Glenchus in view of Fields teaches or suggests staffing according to the demanufacturing process needs, including staff requirements planning based on sudden increased demand (see Fields, column 5 under "Schedule Optimization Phase") and using a computer spreadsheet to do the planning (see Figure 3).

Claim 13

Glenchus in view of Yuri, as above in claim 9, teaches planning an optimal balanced work distribution plan, which is a plan with a productivity target of completing the planned work in the time and with the resources allocated.

Claims 27-31 recite a program storage device for performing the method of claims 9-13 and are similarly rejected for reasons given above.

Claim 32 recites a computer program product for performing the method of claim 31 and is similarly rejected for reasons given above.

***Conclusion***

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dave Robertson whose telephone number is 571-272-8220. The examiner can normally be reached on 8:15am to 5:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000..

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9/21/07

  
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